
बुलेट प्रतिरोधक मोबाइल सेन्ट्री
पोस्ट की विशिष्टि

**Specification for Bullet Resistant
Mobile Sentry Post**

ICS 13.310

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FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Security Equipment Sectional Committee, had been approved by the Mechanical Engineering Divisional Council.

The Indian military, security forces and law enforcement agencies face threats from small arms ammunition while performing various kinds of duties in operational area. Bullet resistant sentry posts are used to provide ballistic protection to the security personnel for maintaining effective surveillance in the designated areas. It is therefore important to set minimum performance requirement and test protocols of bullet resistant (BR) sentry posts so that only acceptable quality is made available to the security forces.

Multiple test agencies in the country are involved in physical and ballistic testing of sentry posts. However at present there is no common procedure in place to ensure inter-laboratory correlation of test results.

Many types of ammunition defined in international standards are not relevant in Indian context. The weapons and ammunitions handled (and faced) by Indian forces need to be categorized into specific threat levels.

Operating and environmental protocols for the ballistic materials vary over the Indian sub-continent. These can affect the shelf life as well as service life of the sentry post.

The composition of the Committee responsible for the formulation of this standard is given in Annex D.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

SPECIFICATION FOR BULLET RESISTANCE MOBILE SENTRY POST

1 SCOPE

1.1 This standard prescribes the minimum performance requirements of sentry posts for protection against small arms ammunitions and provides procedures for their evaluation. The scope of the standard is limited to physical and ballistic evaluation of sentry posts against in service small arms ammunition used by the Indian Armed Forces, central armed police forces and other law enforcement agencies.

1.2 This standard covers only the basic design of sentry posts and provides guidelines for its evaluation. Specific requirements in terms of design, protection area, additional attachments, storage arrangements etc. are entirely dependent upon the user/purchaser.

2 REFERENCES

The standards listed in Annex A contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subjected to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in Annex A.

3 TERMINOLOGIES

For the purpose of this standard, the following definitions shall apply.

3.1 Penetration — Penetration will be defined as the entry of the penetrator into any region of the target.

3.2 Perforation — Perforation means that the penetrator has caused failure of the target as specified in 7.4.3.

3.3 Obliquity Angle — The angle between the line of the projectile trajectory and normal to the target. Therefore, a projectile fired perpendicular to the armor surface has 0 degree obliquity angle.

4 MATERIAL

4.1 The recommended material for bullet resistant sentry posts is armor grade steel/ballistic grade steel with below mentioned mechanical properties:

Hardness : Min.500 BHN

Charpy V Notch Impact : Min.20 J at –40 °C and Min. 28 J at 25 °C

Supplier shall submit a certificate confirming to the compliance of the above mentioned mechanical properties. Based on technological advancements, any other suitable material complying with the performance requirement may also be considered.

5 CONSTRUCTION AND WORKMANSHIP

5.1 Bullet resistant sentry post shall consist of six main armour panels: front wall, rear wall, left wall, right wall and two roof panels as shown in Fig. 1. Each armour panel shall be constructed from a single, homogeneous sheet of ballistic grade steel. The recommended design specifications of bullet resistant sentry post are specified in Table 1.

5.2 Dimensions and Weight

Recommended dimensions and weights for Model-I and Model-II of bullet resistant sentry post are mentioned in Table 2 and 3 respectively. Figure 1 and Fig. 2 may be referred for guidance on major dimensions and basic design. However, the user may define their own dimensions and design considering their operational and functional requirements. The weight of sentry post (excluding bullet resistant glass) can be calculated based on the density of armor grade steel/ballistic grade steel i.e. 7 850 kg/m³.

The weight of bullet resistant glass windows can be calculated based on the density of bullet resistant glass that is, 2 300 kg/m³.



FIG. 1 BASIC COMPONENTS OF A MOBILE BULLET RESISTANT SENTRY POST

Table 1 Design Specifications of Bullet Resistant Mobile Sentry Post
(Clause 5.1)

SI No.	Characteristics	Specification
(1)	(2)	(3)
i)	Assembling	The bullet resistant sentry post shall have a modular design so that the structure can be conveniently assembled and dismantled in field conditions
ii)	Handling	Handles/hooks shall be provided at suitable locations to enable lifting and relocating the sentry post in assembled and disassembled configuration
iii)	Fitments	a) All fitments shall be placed in such a way that the properties of bullet resistant steel are not affected b) The joints shall be tested for its bullet resistant property irrespective of the distance of such joints from the edges c) There shall not be any gap more than 1.5 mm between the sheets in assembled condition of the bullet resistant sentry post. However, there shall be the provisions of overlapping of the bullet resistant sheets to prevent perforation/penetration through gap
iv)	Locking Arrangement	Each plates of the bullet resistant sentry post shall have convenient locking arrangement (for example, chain and pin) for assembling and dismantling
v)	Replacement	Whenever the bullet resistant sentry post is fired upon and the port shutter gets damaged, the replacement shall be possible
vi)	Storage Facility	a) Minimum two hooks shall be provided on the inner side of each wall (front, rear, left and right) for hanging the weapon/binocular/compass/NVD and water bottle etc b) Additional storage facility for ammunition shall be provided as per user requirements
viii)	Hinge Joints	All Hinge Joints (including pin and chain) of bullet resistant sentry post shall be as per “heavy weight stainless steel hinges” category of IS 12817
ix)	Door	The rear side shall be provided with a door of size 1900 mm × 750 mm. Refer Fig. 2 for the location of the door
x)	Observation Windows	An observation window of size 500 mm × 300 mm shall be provided on front, left and right side of Sentry post. Rear side of the sentry post shall have two observation windows of size 400 mm × 300 mm Refer Fig. 2 for location of the windows
xi)	Firing Ports	Each side of sentry post (front, rear, left and right) shall have two firing ports of size 175 ± 5 mm × 125 ± 5 mm with adequate overlapping of armour grade steel sliding shutter form the inner side. The height of firing port shall be 1300 mm and 950 mm respectively from the bottom to facilitate firing from knee bent as well as standing positions. Refer Fig. 2 for location of the firing ports
xii)	Workmanship	Sentry post shall be free from blisters, cracks, chipping and sharp corners.

Table 2 Dimensions and Weight for Model-I Bullet Resistant Sentry Post
(Clause 5.2)

SI No.	Parameters	Dimensions			
		Front wall	Left/Right Wall	Back Wall	Door
(1)	(2)	(3)	(4)	(5)	(6)
i)	Height (mm)	2400 ± 10	2150 ± 10	2400 ± 10	1900 ± 10
ii)	Width (mm)	1500 ± 10	1500 ± 10	1500 ± 10	750 ± 10
iii)	Thickness (mm)	6.5 (max)	6.5 (max)	6.5 (max)	6.5 (max)
iv)	Weight	Maximum 1 100 kg (inclusive of all accessories required for fabricating the sentry post). This weight will be inclusive of joints, fitments, handles, hooks etc NOTE — The dimension and weight of any additional accessories like ammunition box to be calculated by user based on their requirements			
v)	Observation windows	An observation window of size 500 mm × 300 mm × 45 mm shall be provided on front, left and right side of Sentry post Rear side of the sentry post shall have two observation windows of size 400 mm × 300 mm × 45 mm. Refer Fig. 2 for location of the observation windows NOTE — Size of the observation window can be changed based on user requirement			

Table 3 Dimensions and Weight for Model-II Bullet Resistant Sentry Post
(Clause 5.2)

Sl No.	Parameters	Dimensions			
		Front wall	Left/Right Wall	Back Wall	Door
(1)	(2)	(3)	(4)	(5)	(6)
i)	Height (mm)	2400 ± 10	2150 ± 10	2400 ± 10	1900 ± 10
ii)	Width (mm)	1500 ± 10	1500 ± 10	1500 ± 10	750 ± 10
iii)	Thickness (mm)	14 (max)	14 (max)	14 (max)	14 (max)
iv)	Weight	Maximum 2100 kg (inclusive of all accessories required for fabricating the sentry post). This weight will be inclusive of joints, fitments, handles, hooks etc.			
		NOTE — The dimension and weight of any additional accessories like ammunition box to be calculated by user based on their requirements.			
v)	Observation windows	An observation window of size 500 mm × 300 mm × 75 mm shall be provided on front, left and right side of Sentry post. Rear side of the sentry post shall have two observation windows of size 400 mm × 300 mm × 75 mm. Refer Fig. 2 for location of the observation windows.			
		NOTE — Size of the observation window can be changed based on user requirement			

6 PERFORMANCE REQUIREMENT

6.1 Major threats faced by the Indian armed forces, paramilitary, state police forces and other law enforcement agencies shall be classified into six threat levels as given in Table 7 of IS 17051.

The sentry post shall meet the protection level against the ammunition as given in Table 4.

7 BALLISTIC EVALUATION

7.1 Weapon Systems

Weapon systems shall preferably be test barrels. However, conventional weapons may also be used to achieve velocities specified in Table 4. Weapon systems shall be aligned to ensure normal impact on the target from the specified stand-off distance.

7.2 Velocity Measurement

Non-contact velocity measurement system (optical, laser, doppler based systems etc.) shall be used. Velocity of projectile at 2.5 meter from the front face of target shall be reported as impact velocity.

7.3 Target Configurations

7.3.1 Coupon Level Targets

Such targets shall consist of a single armour material or combination of materials for ballistic evaluation

of basic raw materials. The recommended size of bullet resistant steel target is 300 × 300 mm² and recommended size of bullet resistant glass target is 500 × 500 mm². Such target shall be tested as per test methodology described in 7.4.

7.3.2 Fully Fabricated Targets

These targets shall constitute the fully assembled bullet resistant sentry post, which will be tested as per test methodology described in 7.5.

7.4 Ballistic Test Methodology for Coupon Level Tests

7.4.1 Fair Hit Criteria

Unless specified otherwise, an impact is considered a fair hit, if it meets the criteria specified in Table 5. However, under following conditions, even unfair shot shall be considered a valid shot for ballistic evaluation:

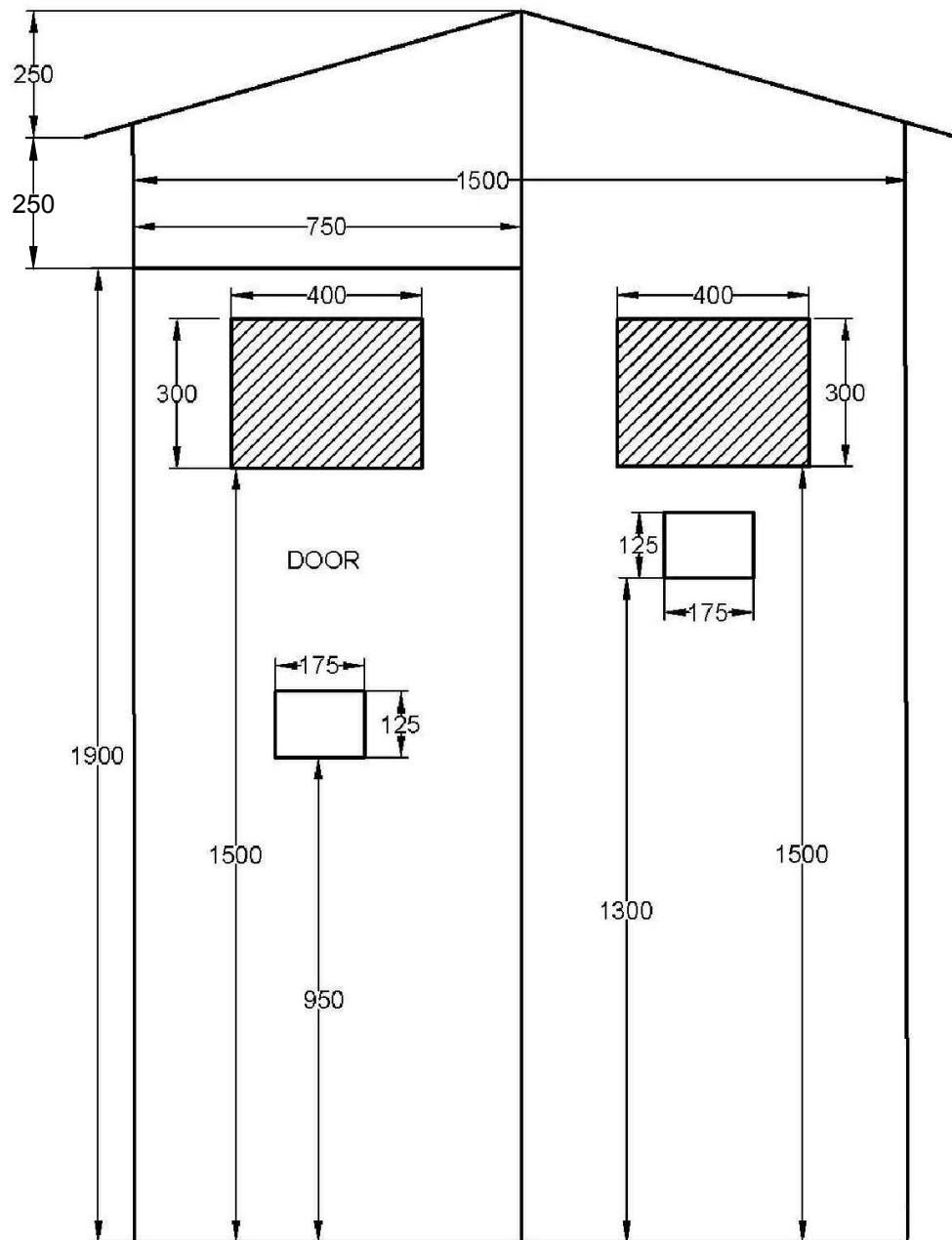
- Impact velocity is higher than specified limit, but acceptance criteria are complied.
- Impact velocity is lower than specified limit, but acceptance criteria are not complied.
- Inter-shot/Edge to shot distance are less than specified limit, but acceptance criteria are complied.

Table 4 Protection Levels for Bullet Resistant Sentry Post

(Clauses 6.2, 7.1 and 7.4.2)

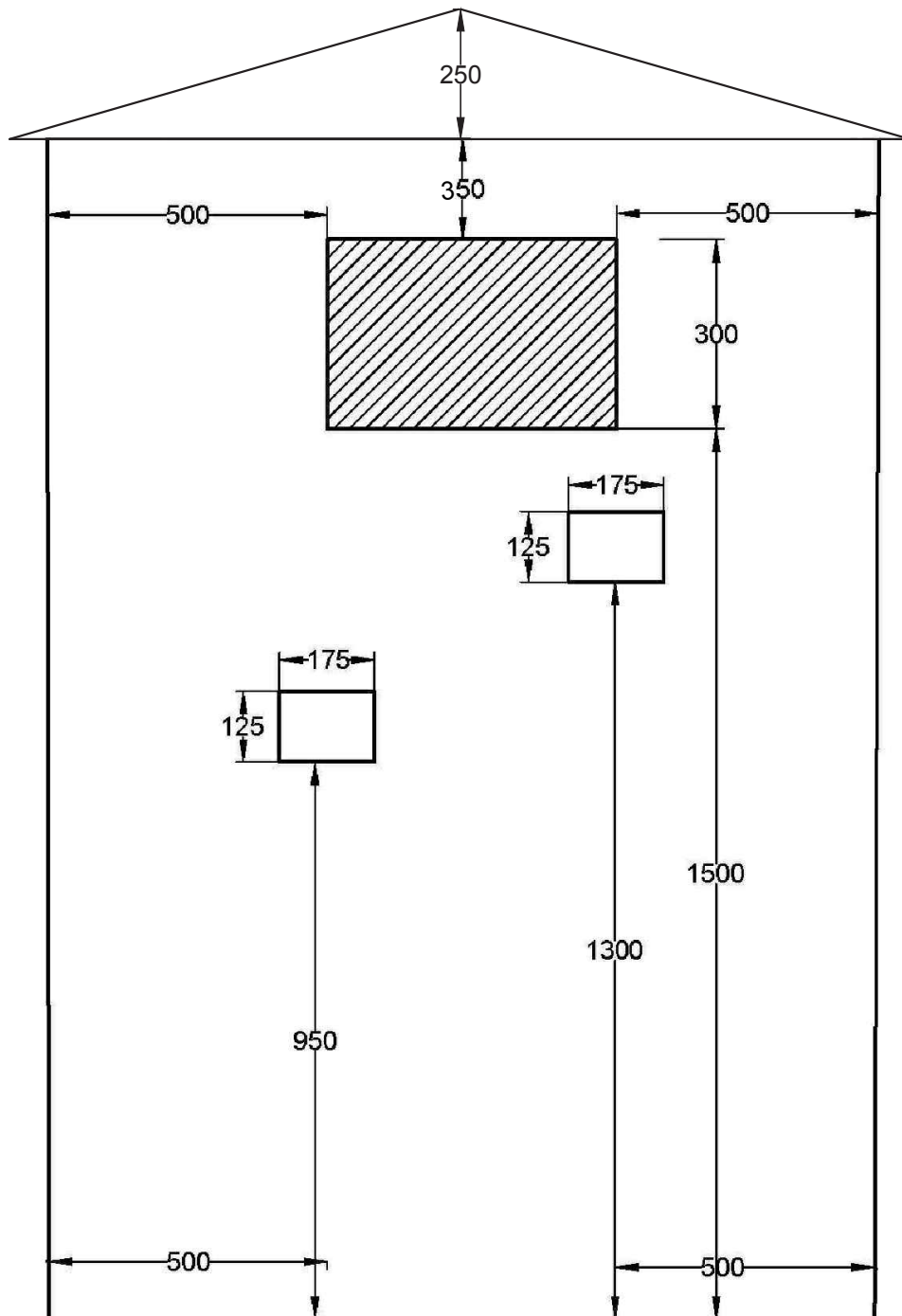
Sl No.	Model	Threat Level as per IS 17051 (Ammunition Description)	Impact Velocity (m/s)	Mass of Bullet (g)	Distance of Impact (m)
i)	Model I	Level 3 (7.62 × 51 NATO)	840 ± 15	9.4-9.6	10 ± 0.5
		Level 5 (7.62 × 39 HSC)	700 ± 15	7.45-8.05	
ii)	Model II	Level 6 (7.62 × 54 R API)	830 ± 15	10.3-10.5	10 ± 0.5

NOTE — API : Armor Piercing Incendiary, HSC : Hard Steel Core



All dimensions in millimetres.

FIG. 2A SENTRY POST — REAR / DOOR SIDE



All dimensions in millimetres

FIG. 2C SENTRY POST-FRONT SIDE

In case of invalid shots, additional shots may be fired on a test sample depending upon the area available and possibility of fair hit. If the sufficient area is not available for additional shots, the sample shall be discarded and a fresh sample shall be taken for ballistic testing.

7.4.2 Number of Fair Shots per Test Sample

Unless specified otherwise, each bullet resistant steel sample shall be impacted with 06 number of fair shots as per the protection level and impact conditions specified in Table 4 and Table 5 respectively. Each bullet resistant glass sample shall be impacted with 03 number of fair shots as per the protection level and impact conditions specified in Table 4 and Table 6 respectively. The location of the impact location shall be decided by the testing agency to exploit the potential weak areas of the target.

Table 5 Parameters for Fair Hit Criteria on Bullet Resistant Steel Sample
(Clauses 7.4.1 and 7.4.2)

Ammunition	7.62 × 51 mm NATO	7.62 × 39 HSC	7.62 × 54 R API
Impact velocity (m/s)	840 ± 15	700 ± 15	830 ± 15
Edge to shot distance (minimum)	51 mm	51 mm	51 mm
Inter shot distance (minimum)	51 mm	51 mm	51 mm

Table 6 Parameters for Fair Hit Criteria on Bullet Resistant Glass Sample
(Clause 7.4.2)

Ammunition	7.62 × 51 mm NATO	7.62 × 39 HSC	7.62 × 54 R API
Impact velocity (m/s)	840 ± 15	700 ± 15	830 ± 15
Edge to shot distance (minimum)	51 mm	51 mm	51 mm
Inter shot distance (minimum)	120 mm	120 mm	120 mm

7.4.3 Acceptance Criteria

A witness plate of aluminium alloy AA 2024 T3 (or T4) with thickness 0.5 ± 0.05 mm shall be placed at a standoff distance of 150 ± 10 mm behind and parallel to the back face surface of the target at the aim point. The witness system should extend over a sufficient area (equal to or larger than the target size) such that all significant projectile or target debris can be detected.

The level of damage on the aluminium witness plate shall constitute the Acceptance Criterion for the evaluation of success or failure of a target against a particular projectile. After each ballistic impact, the witness plate shall be visually examined for damage and evidence of penetration by the projectile or target

materials. Perforation of the target shall be recorded when light is observed to pass through the damage in the witness plate.

7.5 Ballistic Test Methodology for Fully Fabricated Bullet Resistant Sentry Post

7.5.1 Ballistic evaluation committee will identify main areas and structurally weak areas on the fully fabricated sentry post submitted for ballistic evaluation. Main Areas are the relatively uniform armour panel areas of the fully fabricated sentry post. Structurally weak area (SWA) shall include edges, joints, interfaces, bends, handles, discontinuities etc.

7.5.2 Main areas shall be subjected to multiple hit testing as per Table 7. Each panel of bullet resistant sentry post (front, rear, left and right) will be subjected to multi hit testing as per the procedure described in 8.

7.5.3 Structurally Weak Areas (SWA) shall be subjected to single hit testing as per Table 8. Fair hit criteria for ballistic evaluation of SWAs are presented in Table 9.

Table 7 Number of Fair Shots for Multi Hit Testing on Main Areas
(Clause 7.5.2)

Model No.	Ammunition	No. of Shots
Bullet resistant sentry post Model-I	7.62 × 51 mm NATO	08
	7.62 × 39 HSC	08
Bullet resistant sentry post Model-II	7.62 × 54 R API	16

Table 8 Number of Fair Shots for Single Hit Testing on Structurally Weak Areas
(Clause 7.5.3)

Model No.	Ammunition	No. of Shots
Bullet resistant sentry post Model-I	7.62 × 51 mm NATO	08
	7.62 × 39 HSC	08
Bullet resistant sentry post Model-II	7.62 × 54 R API	16

Table 9 Fair Hit Criteria for Ballistic Evaluation of Structurally Weak Areas
(Clause 7.5.3)

Ammunition	7.62 × 51 mm NATO	7.62 × 39 HSC	7.62 × 54 R API
Impact velocity (m/s)	840 ± 15	700 ± 15	830 ± 15
Inter shot distance (minimum)	51 mm	51 mm	51 mm

7.5.4 Bullet resistant glasses, if any, shall be subjected to single hit testing as per Table 10. Three bullets each

shall be fired on any three bullet resistant glasses. Fair hit criteria for ballistic evaluation of bullet resistant glasses in fully fabricated sentry post will be same as stated in Table 6. Acceptance criteria will be same as prescribed in 7.4.3.

7.5.5 Under following conditions, even unfair shot shall be considered a valid shot for ballistic evaluation:

- Impact velocity is higher than specified limit, but acceptance criteria are complied.
- Impact velocity is lower than specified limit, but acceptance criteria are not complied.
- Inter-shot/edge to shot distance are less than specified limit, but acceptance criteria are complied.

In case of invalid shots, additional shots may be fired on a test sample depending upon the area available and possibility of fair hit. If the sufficient area is not available for additional shots, the sample shall be discarded and a fresh sample shall be taken for ballistic testing.

7.5.6 Acceptance Criteria

Acceptance criteria will be same as prescribed in 7.4.3.

Table 10 Number of Fair Shots on Bullet Resistant Glasses of Fully Fabricated Sentry Post

(Clause 7.5.4)

Model No.	Ammunition	No. of Shots
B. R. Sentry Post Model-I	7.62 × 51 mm NATO	03
	7.62 × 39 HSC	03
B. R. Sentry Post Model-II	7.62 × 54 R API	06

8 MULTI HIT BALLISTIC TESTING

8.1 Multi-hit test methodology is representative of a burst fire attack. The multi-hit pattern is two pairs of shots repeated at a prescribed distance as described below:

a) Shot 1:

The first projectile (#1) is fired at any chosen position in the main area as shown in Fig. 3A.

b) Shot 2:

The possible positions for the second shot (2) are then determined by tracing concentric circles of minimum radial distance N and maximum radial distance N+T onto the target (Fig. 3B). Once shot 2 is completed of the defined zone (Fig. 3C), the allowed area for the third shot (#3) can be defined. The size of N and T is defined in Table 11.

c) Shot 3:

Two concentric circles centred on the midpoint between shots 1 and 2, of minimum radial distance

L and maximum radial distance L+T can be traced on the target. From the midpoint, an angle of ± 60 degree is traced in the directions perpendicular to shot 1 and to shot 2. The zone formed by the concentric circles and the angles is the allowed area for shot 3 (see Fig. 3D and Fig. 3E). The size of L is defined in Table 11.

d) Shot 4:

The fourth shot shall be aimed in the zone formed by concentric circles at distances of N and N+T from the impact point #3, but not closer to the midpoint of shots 1 and 2 than the distance L, as illustrated in Fig. 3F.

On completion of shot #4 (see Fig. 3G), the resultant four shot pattern is as illustrated in Fig. 3H.

Table 11 Impact Tolerances for Multi Hit Testing
(Clause 8.1)

SI No.	Dimension Definition	Value	Size mm
i)	Distance (perpendicular) between shots of each pair (#1 and #2, #3 and #4)	N	25
ii)	Distance (perpendicular) from midpoint of shots #1 and #2 to shot 3	L	100
iii)	Maximum tolerance on shot impact position	T	-0 +20
iv)	EZ (minimum distance to component target edge/boundary)	E	25

8.2 Fair Hit Criteria for Multi-Hit Testing

Unless specified otherwise, an impact is considered a fair hit, if it meets the criteria specified in Table 11. However, under following conditions, even unfair shot shall be considered a valid shot for ballistic evaluation:

- Impact velocity is higher than specified limit, but acceptance criteria are complied.
- Impact velocity is lower than specified limit, but acceptance criteria are not complied.
- Inter-shot/edge to shot distance are less than specified limit, but acceptance criteria are complied.

In case of invalid shots, additional shots may be fired on a test sample depending upon the area available and possibility of fair hit. If the sufficient area is not available for additional shots, the sample shall be discarded and a fresh sample shall be taken for ballistic testing.

8.3 Acceptance criteria will be same as prescribed in 7.4.3.

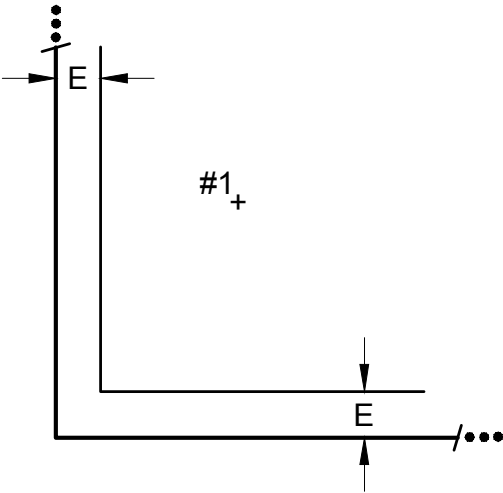


FIG. 3A

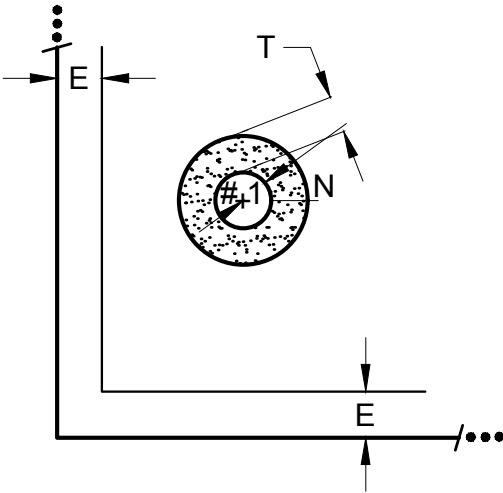


FIG. 3B

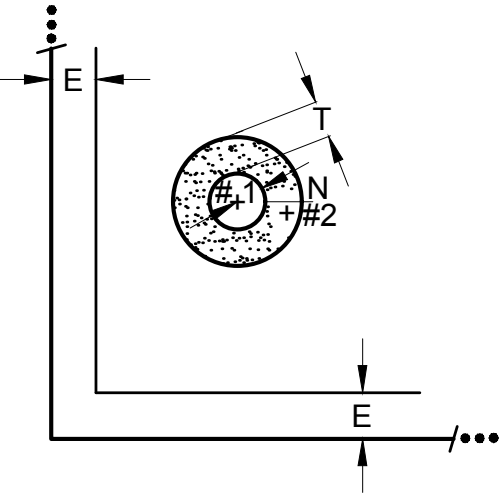


FIG. 3C

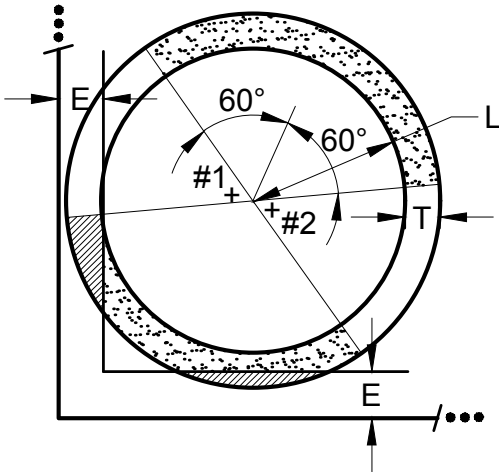


FIG. 3D

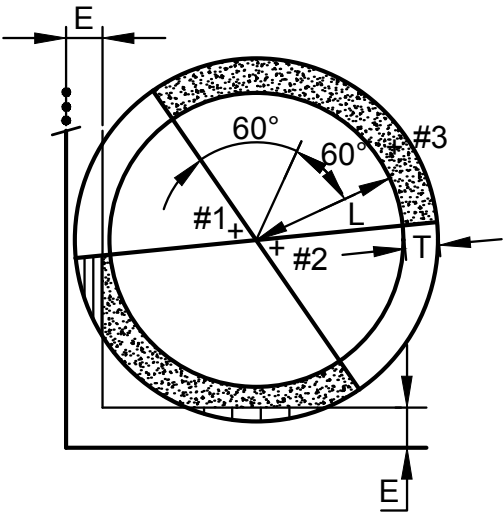


FIG. 3E

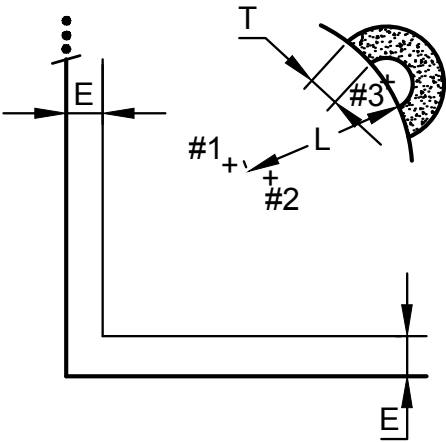


FIG. 3F

The diagram shows a network structure. On the left, a vertical line has a horizontal line crossing it. The horizontal line has an arrow pointing right towards the vertical line, labeled 'E'. Above the vertical line, there are three vertical dots. To the right of the vertical line, there is a horizontal line segment, followed by a vertical line segment, and then another horizontal line segment. The bottom horizontal segment has an arrow pointing right towards it, labeled 'E'. A diagonal line segment connects a point labeled '#1' to a point labeled '#3'. A point labeled '#2' is located on the diagonal line between #1 and #3. A point labeled '#4' is located on the diagonal line between #3 and the top right. A line segment labeled 'L' connects #1 to #3. A line segment labeled 'N' connects #2 to #4.

FIG. 3H

FIG. 3 MULTI HIT TESTING PROCEDURE FOR OPAQUE ARMOUR

Samples selected from lot offered by vendor during the course of supply are designated as lot samples. These shall be tested as per the test procedures given in **7.5** of this standard. Sampling plan and AQL standards shall be followed during lot testing. Only one size of bullet resistant sentry post shall be offered in one lot. Non-conformities as per **9.4** shall be considered for lot samples.

b) Detachment of any fragment, nut, bolt, handle or any other part of the sentry post from the rear surface of the bullet resistant sentry post.

9.4.2.1 Decision on major defect

Lot shall be rejected, if the non-conformities are more than the rejection number corresponding to AQL of 2.5 percent (*see* Annex B).

NOTE — Examples of calculation of samples for lot testing, acceptance and rejection number are given in ANNEX C.

Table 12 Quantity of Samples Required for Ballistic Evaluation
(Clause 9.3)

SI No.	Sample Type	Number of Samples	Size
(1)	(2)	(3)	(4)
i)	R&D	01/protection level	Minimum 300 × 300 mm ² for bullet resistant steel
ii)	Tender	02/protection level	Minimum 500 × 500 mm ² for bullet resistant glass
iii)	Lot testing	As per sampling Plan + 02 standby	As per contract/purchase order

NOTE — Examples of number of samples required for ballistic evaluation during production lot testing are given in Annex C.

10 SERVICE LIFE

The recommended service life of bullet resistant sentry post shall be minimum 10 years from the date of manufacture.

11 CORROSION RESISTANCE

All metallic components of sentry post shall be protected by corrosion resistant coatings as per IS 9172.

12 USER MANUAL

User manual shall be provided by the supplier with each sentry post containing the following information:

- Identification and description of the type of threat protection provided.
- Design and drawing mentioning all the dimensions and weight.
- Complete construction details.
- Complete details of all accessories and their usability.
- Care and maintenance guidance.
- Accessory wise warranty period.
- Any other relevant information.

13 MARKING

13.1 The 'Sentry post' shall be legibly and indelibly marked with the following information on the product itself or on durable and securely attached labels:

- Name of the product;
- Manufacturer's name, initials or trade-mark;
- Size designation;
- Instructions for storage and care;
- Batch number;
- Date of manufacture; and
- Any other information required by the law in force and/or by the buyers.

13.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

ANNEX A

(Clause 2)

LIST OF REFERRED INDIAN STANDARD

<i>IS No</i>	<i>Title</i>	<i>IS No</i>	<i>Title</i>
17051 : 2018	Textiles bullet resistant jackets — Performance requirements	2500 (Part 1) : 2000	Sampling procedure for inspection by attributes: Part 1 Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection (<i>third revision</i>)
		12817 : 2020	Stainless steel butt hinges — Specification (<i>third revision</i>)

ANNEX B

(Clause 9.2)

SAMPLING PLAN AND AQL FOR BALLISTIC EVALUATION**Table 13**

(Clause 9.4.2.1)

Lot Size	Special Inspection Levels				General Inspection Levels		
	S-1	S-2	S-3	S-4	I	II	III
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2 to 8	A	A	A	A	A	A	B
9 to 15	A	A	A	A	A	B	C
16 to 25	A	A	B	B	B	C	D
26 to 50	A	B	B	C	C	D	E
51 to 90	B	B	C	C	C	E	F
91 to 150	B	B	C	D	D	F	G
151 to 280	B	C	D	E	E	G	H
281 to 500	B	C	D	E	F	H	J
501 to 1 200	C	C	E	F	G	J	K
1 201 to 3 200	C	D	E	G	H	K	L
3 201 to 10 000	C	D	F	G	J	L	M
10 001 to 35 000	C	D	F	H	K	M	N
35 001 to 1 50 000	D	E	G	J	L	N	P
1 50 001 to 5 00 000	D	E	G	J	M	P	Q
5 00 001 and over	D	E	H	K	N	Q	R

Table 14 Single Sampling Plans for Normal Inspection
(Clause 9.4.2.1)

Sample size Code letter	Sample Size	Acceptance Quality Limit, AQL, in Percent Non-conforming Items and Non-conformities per 100 Items (Normal Inspection)																											
		0.01	0.02	0.025	0	0.065	0.1	0.15	0.25	0.4	0.65	1	1.5	2.5	4	6.5	10	15	25	40	65	100	150	250	400	650	1000		
A	2	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re		
B	3																												
C	5																												
D	8																												
E	13																												
F	20																												
G	32																												
H	50																												
J	80																												
K	125																												
L	200																												
M	315																												
N	500																												
P	800																												
Q	1250	0	1																										
R	2000																												

ANNEX C

(Clause 9.4.2.1)

CALCULATION OF SAMPLES FOR LOT TESTING,
ACCEPTANCE AND REJECTION NUMBER

- a) *Example 1:* Lot 1 = 100 sentry post, Inspection Level S-4 and Acceptance Quality Limit 2.5 percent.

As per Table 13, for lot size 100 and Inspection Level S-4, sample size code letter will be D.

As per Table 14,

Sample size code letter	D
Sample Size	8
Acceptance quality limit	2.5
Acceptance number	0
Rejection number	1

Since acceptance number is zero in this case, no major defect is acceptable and entire lot will be rejected if any major defect specified in **9.4.2** is observed during Ballistic evaluation.

- b) *Example 2:* Lot 1 = 1 000 sentry post, inspection level S-4 and acceptance quality limit 2.5 percent.

As per Table 13, for lot size 1 000 and inspection level S-4, sample size code letter will be F.

As per table 14,

Sample size code letter	F
Sample size	20
Acceptance quality limit	2.5
Acceptance number	1
Rejection number	2

Since acceptance number is 1 in this case, one major defect shall be acceptable and entire lot shall be rejected if two major defects as specified in **9.4.2** are observed during ballistic evaluation.

NOTE — Acceptance number and rejection number values are not valid for critical defects as specified in **9.4.1**. Entire lot shall be rejected if any perforation in witness plate is observed.

ANNEX D*(Foreword)***COMMITTEE COMPOSITION**

Security Equipments Sectional Committee, MED 24

<i>Organization</i>	<i>Representative(s)</i>
Reserve Bank of India, Mumbai	SHRI D. K. RAGHU (Chairman)
Bank of India, Mumbai	CAPT AKHILESH KUMAR
Central Building Research Institute, Roorkee	DR SUVIR SINGH DR RAJIV KUMAR (<i>Alternate</i>)
Central Bank of India, Mumbai	COL A. K. JHA
EMTAC Laboratories Private Limited, Hyderabad	SHRI SUPRIYO GANGULY
Godrej & Boyce Manufacturing Company Limited, Mumbai	SHRI PRASHANT CHOUTHKANTHIWAR SHRI PUSHKAR GOKHALE (<i>Alternate</i>)
Guardwel Industries Private Limited, Mumbai	SHRI JOHN DMELLO SHRI LEON GEORGE (<i>Alternate</i>)
Gunnebo India Private Limited, Thane, Mumbai	SHRI R. SRINIVASAN SHRI ASHUTOSH SATPUTE (<i>Alternate</i>)
Indian Banks Association, Mumbai	SHRI K. UNNIKRISHNAN
Indian Overseas Bank, Chennai	CAPT P. VENKATESAN
Indian Institute of Technology, Bombay, Mumbai	PROF P. P. DATE
Insurance Regulatory and Development Authority, New Delhi	SHRI T. S. NAIK
Methodox Systems Limited, Indore	SHRI S. K. SINGH SHRI KARAN KATARIYA (<i>Alternate</i>)
NCR Corporation India Pvt Limited, Mumbai	SHRI A. SHANKAR
Punjab National Bank, New Delhi	CAPT B. K. TYAGI SHRI ARUN KUMAR (<i>Alternate</i>)
Safeage Security Products Private Limited, Mumbai	SHRI RAJAN VASANOI SHRI NARESH PANCHAL (<i>Alternate</i>)
Sherni Locks Manufactures Private Limited, Pune	SHRI FAROKH KUTAR SHRIMATI ARTI GUPTA (<i>Alternate</i>)
Shriram Institute for Industrial Research, Delhi	DR TARSEM SINGH SIAN
State Bank of India, Mumbai	CAPT ARUN THAKUR CAPT SUSHIL SINGH (<i>Alternate</i>)
Tata Consultancy Services Limited, Mumbai	SHRI AJIT MENON SHRI R. K. RAGHAVAN (<i>Alternate</i>)
Union Bank of India, Mumbai	BRIG ASHUTOSH SIROTHIA
Voluntary Organization in Interest of Consumer Education, New Delhi	SHRI M. A. U. KHAN
In Personal Capacity (<i>Plot No. 41, Block No. 5, Mehta Cottage, Dr Raut Road, Shivaji Park, Dadar, Mumbai</i>)	SHRI AJIT G. NARAVANE
BIS Directorate General	SHRI RAJNEESH KHOSLA, SCIENTIST 'E' AND HEAD (MED) [REPRESENTING DIRECTOR GENERAL (<i>Ex-officio</i>)]

Member Secretary

Ms KHASHBOO KUMARI
SCIENTIST 'C' (MED), BIS

Standardization of Ballistic Security Products Subcommittee, MED 24 : 1

<i>Organization</i>	<i>Representative (s)</i>
Border Security Force, Terminal Ballistics Research Laboratory, Chandigarh	SHRI SANJAY SHARMA (Convenor) DR PRINCE SHARMA (Convenor) SHRI DHARMANSHU SOOD (<i>Alternate</i>)
Arcelor Mittal Nippon Steel India Limited, Gujarat Bharij Fabricators, Mohali	SHRI NITIN AMTE SHRI PARDEEP SINGH SHRI HARCHARAN SINGH (<i>Alternate</i>)
Bureau of Police Research and Development, New Delhi	DR RAVEESH KUMAR
Border Security Force, New Delhi	SHRI SATISH CHANDRA
Central Industrial Security Force, New Delhi	SHRI ANAND SAXENA SHRI R. K. MEEL (<i>Alternate</i>)
Central Reserve Police Force, New Delhi	SHRI P. SARTHI SAHU
Defence Materials and Stores Research and Development Establishment, Kanpur	SHRI AJITENDRA SINGH PARIHAR
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Indian Tibetan Border Police, New Delhi	SHRI MUNESH
Jindal Stainless (Hisar) Limited, Hisar	SHRI C. P. AGRAWAL SHRI SUMIT RAUTELA (<i>Alternate</i>)
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WW Defsys Private Limited, Greater Noida	SHRI DIVESH RASTOGI SHRI GAURAV CHANDEL (<i>Alternate</i>)

Member Secretary

Ms KHASHBOO KUMARI
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